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Impact of Building Orientation on Market Value: Koya municipality as a case study

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ABSTRACT

The study aims to investigate the impact of building orientation on market value, it's an exploratory study about inhabitants, house customers and owners of real estate offices opinions in the municipality of Koya, as well the building orientations which include eight orientations as independent variable such as north, northeast, east, southeast, south, southwest, west and northwest, also market value as a dependent variable of the study. A questionnaire involving 9 items has been set and distributed through online link as the research sample, the size of the population of the study is 126 residents which were randomly they collected. Then, all of them have been analyzed as the appropriate statistical method is used to analyze data to test research hypotheses via using the regression of

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SPSS program. Finally, the research has several conclusions mainly is the building orientation has the small impact on the market values, also the research recommended that we should not ignore the orientation that preferred by Koya's inhabitants which should focus on the factors that effect on house supplies and demands in the city.

INTRODUCTION

Directions are one of the most important things used every day, as well as the notions of main directions are important organizing themes in architectural theory (Theodore and Barbara, 1995). Then, the reasons that countries are interested in the building orientation are related with the principles of sustainability strategy, as this issue developed after the global energy crisis in 1973 (Koranteng and Abaitey, 2010). On the other hand, orientation of houses can upset their market value. In short, the direction of house is the direction faced by the house. Also some Asian cultures may tend to move towards specific demands for direction and certain types of buyers will not buy a home with any other kind of orientation.

In addition, cold and disease issues are the most important motives that affect people when construct homes and even buying them, especially in Middle Eastern countries.

On the other hands, buildings are the major energy consuming sector accounting more than %40 of global significant energy use, producing substantial carbon emissions than other sector in the world (Rawat et al, 2017). Likewise, buildings are responsible for nearly 40% of total energy use in the world and they also account for more than 40% of the global carbon dioxide productions, with the topical boom in the construction sector, there has been a sudden increase in energy consumption (Kirankumar and Babu, 2016). Furthermore, building energy consumption is

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influenced by many factors such as the number of occupants, building orientation, the number of appliances used, air conditioner performance, window materials, shading the materials of roof and walls (Mulyani et al, 2017).

1.1 RESEARCH QUESTIIONS

This study addresses the following questions:

1) What are the effects of house orientations on market value in Koya municipality?
2) Which orientation is more preferable by Koya house inhabitants or customers? And what is the worst? Why?
3) What is the profit amount which is earned or will gain by transaction houses from the city residents?

1.2 *STUDY* OBJECTIVES

The objectives of this study are attempts to understand and categorize the house orientations in the municipality of Koya, and its aim is to isolate the best and worst of them from the customers of house viewpoints in the city with explanation and analysis of the reasons for the desire of each of the orientations. In general, the aim of the research is to understand the effects of house orientations on the market value and the profitability that pay back by selling the houses which have best and the worst orientations or the profits between them in the city.

1.3 STUDY IMPORTANCE

The importance of the study can be from numerous points, such as to determine the best house orientation with a statement of reasons especially in terms of health and disease, secondly to show the gain and business benefit from the purchase of whichever is better.

With the exception of both points, it is an academic attempt that takes advantage for the designers of urban planning in long term and to real estate marketing in mid or short term.

1.4 STUDY METHOD

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Studying is based on a field research conducted on Koya municipality houses. And qualitative analytical method is used for gathering data for this study to approach the accurate results of the data via using statistical program called SPSS.

1.5 STUDY HYPOTHESES

Depending on the research questions, the study consists of the following hypotheses:

First Hypotheses (H1). May be building orientation has a great or small effect on market value in the Koya municipality, if value R^ < 0 and > 1.

Second Hypotheses (H2). May be not building orientation effect on market value in the Koya municipality, if value R^ < 0 and > 1.

Third Hypotheses (H3). Each type of the eight house orientations according to cardinal and intermediate direction may be more preferable by Koya house customers or may be not favorable.

Fourth Hypotheses (H4). May be receiving great amounts of profit which is earned or will gain by transaction houses in the city when the customers are increased their demands, and may be getting the small amount if the demand is low on the houses in future.

1.6 CASE STUDY

The case study consists of houses which are located in an area that known as municipality of Koya / Erbil – Kurdistan Region Government (KRG) – Republic of Iraqi Federal (Koya Directorate of Real Estate Registration, Kurdistan Region Government-Iraq, 2019); (Halkawt Company for General Contract (2019) Official documents., 2019)and (Presidency of Koya Municipality, Governmental documents, Kurdistan Region Government-Iraq., 2019), with the opinions of residents, real estate owner offices in addition the real estate brokers in the city. For further clarification about the main house orientations within the municipality. See figures (1.1), (1.2), (1.3), (1.4), (1.5), (1.6), (1.7) and (1.8) below:

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FIGURE 1.1. House No. 1/1 at Nawdaran; North orientation

FIGURE 1.2. House No. 4/314 at Znko's Quarter; Northeast orientation.

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FIGURE 1.3. House No. 300/15 at Nawdaran; East orientation.

FIGURE 1.4. House No. 4/324 at Znko's Quarter; Southeast orientation.

FIGURE 1.5. House No. 2/1 at Nawdaran; South orientation.

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FIGURE 1.6. House No. 4/315 at Znko's Quarter; Southwest orientation.

2. THEORWTICAL FRAMEWORK

2.1 CONCEPTS AND DEFINITIONS OF BUILDING ORIENTATIONB.

Orientation is the positioning of a building in relation to seasonal variations in the suns path as well as prevailing wind patterns (JD and Giovangelo, 2014). Then, orientation promotes that a building that is correctly oriented and it can greatly moderate the demands of cooling or heating systems (Vaca, 2015). Moreover, it can reduce the cost of both systems (Anumah and Anumah, 2017). On the other hand, (Mokrzecka, 2018) determined that the orientation does not significantly influence the consumption in well insulated buildings. Conversely, (Daware, A. R., 2017) Point out that according to the architecture temple the orientation is significant.

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FIGURE 2.1. House No. 299/15 at Nawdaran; West orientation

FIGURE 2.2. House No. 4/381 at Znko's Quarter; Northwest orientation.

On the other hand, (Danook, 2016) focused on the orientation of building plan which can affect on the amount of solar heat that is received by the surface of a house. Likewise, it can simplify temperature moderation and natural day lighting (Anumah and Anumah, 2017). In addition, the most optimal building orientation can be used to minimize the direct sun radiation into the buildings through windows (Al-Tamimi, et al, 2010).

On the other hand, (Anumah, and Anumah, 2017) explained that the significance of the orientation is a matter of difference from one country to another and from one city to another. For instance, from a southern hemisphere perception, building orientation will adjust building energy behavior such as optimizing daylight availability, enhancing heating benefits from solar gain in winter and for warmer climates and cutting cooling loads in summer from solar gain (Mulyani et al, 2017).

On the other hand, (Daware, 2017) explained the factors which increase the importance of house orientation such as comfort ability for living to give positive energy, good health, prosperity and wealth to the occupants. Furthermore, right orientation residence is highly effective way to inferior energy use and if planned early may be simple and economical to accomplish (Andersson et al, 1985).

There are various types of orientation but (Daware, 2017) numbered eight directions such as north, south, east, and west are called cardinal directions and the point where any of two directions meet is called inter-cardinal or ordinal point like Northeast (NE), Southeast (SE), Southwest (SW) and Northwest (NW), see figure (2.3) bellow:

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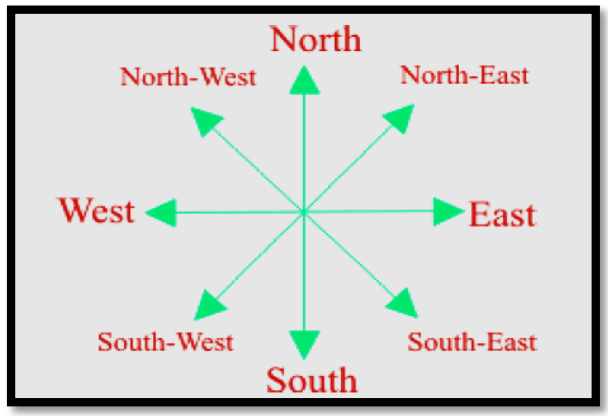

FIGURE 2.3. Cardinal and intermediate direction (Daware, 2017).

In addition, the cardinal directions acquired their distinct characters through observations of celestial phenomena; reflect in the etymology of east, west, south and north (Hall et al, 1995). As well, (Al-Obaidi et al, 2019) studied the impacts of dynamic factors on marketing value variations under the effect of different house orientations such as north, north east, east, south east, and south, southwest, west and northwest.

2.2 CONCEPTS AND DEFINITIONS OF MARKET VALUE

According to (Olajide et al, 2016), value is an ambiguous concept and it has the different meanings, groupings and theories. However it's linked with the other concepts such as cost, price and worth, as well as there are four types of value such as insurable, assessed, condemnation and liquidation value (JD and Giovangelo, 2014).
In addition, according to the international valuation standards definition of market value a willing buyer and willing seller has a role to make value (Lind and Nordlund, 2019). On the other hand, authors in (JD and Giovangelo, 2014) classified the value in to four elements such as utility, scarcity, demand and transferability. furthermore, market value has been variously well-defined as the best price estimates in terms of money which the property would convey if displayed for sale in the open market allowing an sufficient time to locate a buyer who purchases with the knowledge of all the uses to which it is modified and for which it is proficient of being used (Olajide et al, 2016). Also, (JD and Giovangelo, 2014) defined the market value as "the most probable price a buyer, acting freely, would pay and the lowest price a seller, acting freely, would accept, assuming both are fully informed and the property has been on the market for a reasonable time". Similarly, the market value of an asset is basically the market price at which the asset trades in an open marketplace (Van Horne et al, 2019).

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On the other hand, (Lowrance, 2015) focused that buyer and sellers of real estate have a clear interest in set prices related to market value. Correspondingly, JD and Giovangelo (2014) illuminated that the value of real estate is related to the accommodation and income. Similarly, from the economic theory viewpoints, price is determined by the demand and supply. In introductory courses, demand and supply curves are drawn, and the joint between demand and supply curves determine the equilibrium price. The equilibrium price can be realized as the market value (Lind, and Nordlund, 2019).

3. DATA COLLECTIO, ANALYZING AND FINDINGS

The data was collected from Koya district inhabitants through the questionnaire form as a study tool which are include 9 questions see appendix (A) and table (3.1) that directed it through online link for them also it has the statistical acceptable reliability rate approximately at 0.747 . In addition, it's depending on the theoretical framework of the study.

TABLE 3.1. Questionnaire reliability

Cronbach's Alpha	No. of Items
0.747	9

According to the participants in the questionnaire, there were 126 citizens participated having houses on the borders of the municipality of Koya district, according to table (3.2) 95.2% participated as inhabitants and 2.4% of them equally participated as both real estate owners and real estate customers. In addition, 63.5 % owned the house through building and others by purchasing owned the house who was equal to 36.5% of the sample.

TABLE 3. 2. Study sample participants

Citizens' group	Frequency	Percent
Inhabitant	120	95.2
Real estate owner	3	2.4
Real estate customer	3	2.4
Total	126	100.0

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Results table (3.3) shows that house orientation has a small affect on market values of houses in border of Koya municipality because R square is greater than 0 and less than 1 which is equal to 0.017 and sig. F change equal to 0.141, it's test for (H1.), in addition to it, Koya inhabitants don't pay attention to the orientations when they decide to purchase the house.

TABLE 3.3. Regression model summary

Change Statistics				
R Square Change	**F Change**	**df1**	**df2**	**Sig. F Change**
0.017[a]	2.194	1	124	0.141

a. Predictors: (Constant), House orientation

On the other hand, 47.6 % of Koya residents assume that orientations, building quality and structure together are essential before they select house to purchase, after that 13.5% of them were important by the house orientation alone and the design, at the same time they think about location at rate 11.9%, 7.1% to form and decorate. Besides 6.3% for house structure alone, see table (3.4) and figure (3.1).

TABLE 3.4. Factor ratios that effect on house purchasing in Koya

Factors effect on real estate market value	Frequency	Percent
Orientation	17	13.5
Building quality and structure	8	6.3
Orientation, quality and structure together	60	47.6
Location	15	11.9
Design	17	13.5
Form and decorating	9	7.1
Total	126	100.0

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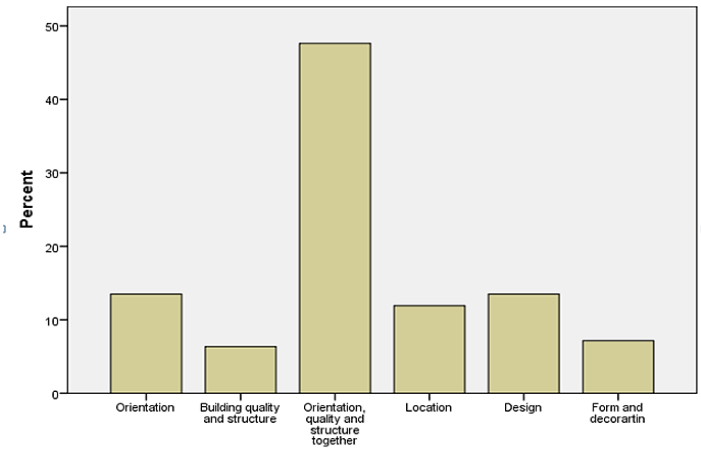

FIGURE 3.1. Chart of factors that effect on house purchasing in Koya

In addition, 27% of residents consider that the southeast is the best and favorable orientations for the houses in the city, then it's the test of (H3.) and it means that they want to use the sun throughout the day, but the other rates tell us that inhabitants do not pay attention to the house orientation because of they chose north as second with the rate 19.8%, besides 13.2% for northwest, 11% west, both of east and southwest have 8.7%, also 7.1% for north east and 3.2% as an inferior orientation they selected the south due to the summer heats of the sun, see table (3.5) and figure (3.2). At the same time, most of the participant responses according to the question that related to the causes of selecting the specific orientation think that the motives to be interested in orientation is comforting to living at rate 50%, after that 27% of them effected by their income, because some of them are rich so that they can purchase the house which has any orientation, but others due to their low standard of living are limited to choose the best orientation. Besides the temperature of the house at rate 13.53% and disease and health at 9.5% were insignificant factor that effected the inhabitants, see table (3.6).

TABLE 3.5. Favorable and worst house orientation ratios in Koya

Cardinal and intermediate house direction	Frequency	Percent
North	25	19.8

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Northeast	9	7.1
East	11	8.7
Southeast	34	27.0
South	4	3.2
Southwest	11	8.7
West	15	11.9
Northwest	17	13.5
Total	126	100.0

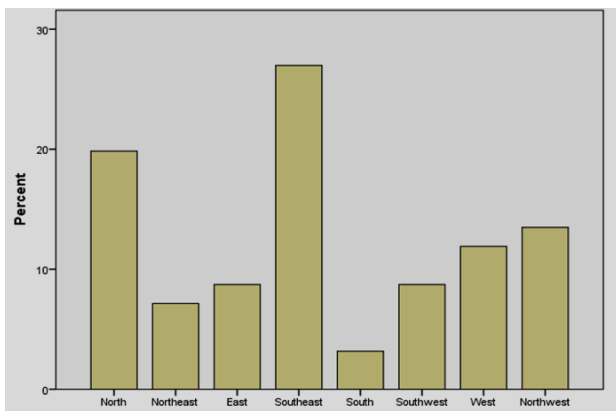

FIGURE 3.2. Chart of favorable and worst house orientation in Koya

TABLE 3.6. Factor ratios that effect on house orientations in Koya

Factors effect on house orientation	Frequency	Percent
Comfortable for living	63	50.0
House temperature	17	13.5
Disease and health	12	9.5
Income	34	27.0
Total	126	100.0

On the other hand, according to inhabitant responses, 19.8% cost of houses in Koya are more than 100000 US dollars, while it's the large amount but other responses support

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this because 95% of inhabitants purchased their houses to stay in instead of re-selling it for further information about other house costs range see table (3.7) as well as table (3.8), also they want to comfort at their home which were explained overhead. In addition, results of table (9) focused on most of inhabitant's estimates the near price for their houses. For instance, %19.8 of them estimated more than 100000$ for selling their houses.

But, according to amount of profits which are earned in subtracting between selling prices and purchasing cost it's clear that 38.1% of them will gain more than 30000 US dollars or they received already, and it's the response of the test of (H4.), for more information about other profit amounts see table (3.10) and figure (3.3).

TABLE 3.7. Koya house cost range ratios

Cost of house/ US dollars	Frequency	Percent
10000-20000	11	8.7
20001-30000	17	13.5
30001-40000	16	12.7
40001-50000	19	15.1
50001-60000	12	9.5
60001-70000	8	6.3
70001-80000	10	7.9
80001-90000	4	3.2
90001-100000	5	4.0
More than 100000	24	19.0
Total	126	100.0

TABLE 3.8. Purpose of built/ purchasing of house in Koya- 2019

House using purpose	Frequency	Percent
To stay in	120	95.2
To re-sell	6	4.8
Total	126	100.0

TABLE 3.9. Inhabitant cost estimation of Koya houses range ratios

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House costs/ US dollars	Frequency	Percent
10000-20000	10	7.9
20001-30000	13	10.3
30001-40000	15	11.9
40001-50000	14	11.1
50001-60000	17	13.5
60001-70000	10	7.9
70001-80000	9	7.1
80001-90000	8	6.3
90001-100000	5	4.0
More than 100000	25	19.8
Total	126	100.0

TABLE 3.10. Koya real estate profit earned/will gain in the future

Real estate profit ranges/ US dollars	Frequency	Percent
201-400	9	7.1
401-600	4	3.2
601-800	4	3.2
801-1000	11	8.7
1001-2000	11	8.7
2001-3000	11	8.7
3001-4000	5	4.0
4001-5000	11	8.7
10001-20000	3	2.4
20001-30000	9	7.1
More than 30000	48	38.1
Total	126	100.0

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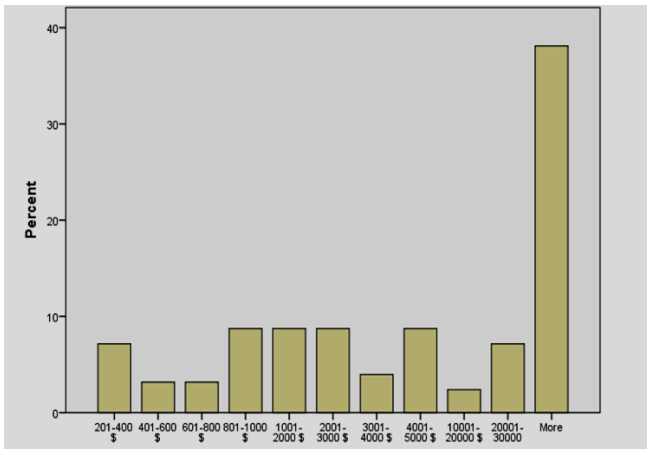

FIGURE 3.3. Chart of Koya real estate profit earned/will gain in the future.

4. CONCLUSIONS

Results show that building orientation has a small effect on market values specifically on the houses that located at Koya municipality at R square rate 0.017 and sig.f change 0.141. As well the inhabitants pay attention to orientation quality and structure together at rate 46.7% more than other factors that effect on real estate market. However, they pay special care to the house orientation alone at rate 13.5% which is inconsequential rate. While the rate of orientation effect is low but the orientation that more prefer from Koya house customers is southeast and the worst is south because of its impact on the temperatures of the house especially in summer season. In addition, real estate profit amount of many houses which are equal to 38.1% is more than 30000 US dollars for trade a house which is earned or will gain for the residents.

5. RECOMMENDATION

The study suggested that the government is responsible particularly Koya presidency municipality for a long time that should increase awareness of the citizens about architectural issues especially the role of orientations and heats. The study also recommended for citizens, real estate customers and real estate offices in short term plan that they should not ignore the orientation that preferred from Koya inhabitants and should focus on the factors that affect on house supplies and demands in the city.

REFERENCES:

Al-Obaidi, M. A. A. H. and Woods, P. (2019)" Investigations on effect of the orientation on thermal comfort in terraced housing in Malaysia ", International Journal of Low Carbon Technologies Vol. 1, No.2.

Al-Tamimi, N. A., Syed Fadzil, S. F. and Harun, W.M.W. (2010)" The effects of orientation, ventilation, and varied WWR on the thermal performance of residential rooms in the Tropics", Journal of Sustainable Development Vol. 4, No. 2; doi:10.5539/jsd.v4n2p142.

Andersson, B., Place, W., Kammerud, R. and Scofield, M. P. (2014)" The impact of building orientation on residential heating and cooling", Lawrence Berkeley National Laboratory; University of California.

Anumah, J. J., Anumah, L. (2017)" Building orientation; enhancing nature with nature", Journal of Applied Sciences & Environmental Sustainability Vol.3, No.7, Pp. 29 - 35, e-ISSN 2360-8013.

Danook, S. H. (2016) "Simulation the effect of shape and orientation on energy performance for residential building in Kirkuk", International Journal of Environmental Science, Vol. 1.

Daware, A. R. (2017) "Orientation of Hindu temples – India", International Journal of Advanced Engineering, Management and Science (IJAEMS), Special Issue-3; ISSN: 2454-1311.

Haiqiang, L. (2017)" Study on energy-efficient residential building design in hot-summer and cold-winter zone in China", PhD dissertation; Saga University, Japan.

Halkawt Company for General Contract (2019) Official documents.

Hall, T. W. (1995)" The architecture of artificial gravity: theory, form, and function in the high frontier", Space Studies Institute (SSI) and American Institute of Aeronautics and Astronautics (AIAA).

Jain M. (2017) "Residential space planning", 1 Year residential design diploma, Dezyne ECole College.

JD, D. A. C. and Giovangelo, R. A. (2014) Real estate principles I, 13th edit. Lee Institute, Inc., United States of America.

Kirankumar, G., Saboor S. and Babu, T. P. A. (2016)" Investigation of different window and wall Materials for Solar passive building design ", International Conference on Emerging Trends in Engineering, Science and Technology (ICETEST-2015); Procedia Technology Vol. 24, Pp. 523 – 530.

Koranteng, C. and Abaitey, E.G. (2010)" The effects of form and orientation on energy performance of residencial buildings in Ghana", Journal of Science and Technology, Vol. 30, No. 1, Pp 71-81.

Koya Directorate of Real Estate Registration (2019) Governmental documents, Kurdistan Region Government-Iraq.

Lind, H. and Nordlund, B. (2019)" The concept of market value in thin markets and its implications for accounting rules", Journal of Property Investment & Finance, Vol. 37 No. 3, pp. 301-310, ISSN: 1463-578X, DOI: https://doi.org/10.1108/JPIF-02-2019-0022.

Lowrance, R. E. (2015) "Predicting the market value of single-family residential real estate", PhD. dissertation at Department of Computer Science, New York University.

Mokrzecka, M. (2018)" Influence of building shape and orientation on heating demand: simulations for student dormitories in temperate climate conditions", 10th Conference on Interdisciplinary Problems in Environmental Protection and Engineering EKO-DOK 2018; Vol. 44, Polanica-Zdrój, Poland, Available at: https://doi.org/10.1051/e3sconf/20184400117.

Mulyani, R., Kholidasari, I. and Wardi (2017)" The impact of building orientation on energy use: A case study in Bung Hatta University, Indonesia", International Journal of Real Estate Studies, Vol.11, No.1.

Olajide, S. E., MohdLizam and Olajide, E. B. (2016) "Understanding the conceptual definitions of cost, price, worth and value", Journal of Humanities and Social Science (IOSR-JHSS), Vo. 21, Issue 9, Pp. 53-57, e-ISSN: 2279-0837, p-ISSN: 2279-0845.

Presidency of Koya Municipality (2019) Governmental documents, Kurdistan Region Government-Iraq.

Rawat, V., Shivankar, S., Das, B. and Sil, B. (2017)" Effect of orientation of window on building heat load: Perspective of N-E India ", IOP Conf. Series: Materials Science

and Engineering 225, IOP Publishing Ltd., doi:10.1088/1757-899X/225/1/012166.

Vaca, L. H. (2015) "Architectural form, orientation, and energy for residential design in

the Southern Nevada region", Master thesis, University of Nevada, Las Vegas.

Van Horne, J. C. and Wachowicz, J.M. (2009) Fundamentals of financial management,

13th edit. Pearson Education Limited.

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كاريگەرى ئاڕاستەى خانوو لەسەر بەهاى بازار: كەيسى توێژينەوە شارەوانى كۆيە

پـوخـتـە:

ئامانجى ئەم توێژينەوە بۆ زانينى كاريگەرى ئاڕاستەكانى خانووە لەسەر بەهاى بازار, و توێژينەوەيەكى ڕاپرسيە بۆ وەرگرتنى ڕاى هەريەكە لە دانيشتوان و كڕيار و خاوەن نوسينگەكانى خانووبەرە لە سنوورى شارەوانى كۆيە, بەم شێوەيە ئاڕاستەكانى خانوو بريتيە لە گۆڕاوى سەربۆخۆ كە هەشت ئاڕاستە لەخۆدەگرێت وەكو؛ باكوور, باكوورى ڕۆژهەڵات, ڕۆژهەڵات, باشوورى ڕۆژهەڵات, باشوور, باشوورى ڕۆژئاوا, ڕۆژئاوا لەگەل باكوورى ڕۆژئاوا, هەروەها گۆڕاوى شوێنكەوتەى توێژينەوەكەش بريتيە لە بەهاى بازار. فۆرمى ڕاپرسيەكە 9 دەربڕين يان پرسيار لەخۆ دەگرێ و لە ڕێگەى لينكێكى ئينتەرنێتيەوە دابەشكرا بەسەرسامپڵى توێژينەوەكە, و قەبارەى دانيشتوانى بەشداربووى توێژينەوەكە 126 كەس بوون بەشێوەيەكى هەرەمەكى لەو كەسانەى كە دانيشتوانى شارەكە بوون . لەپاش ئەمە, بەمەبەستى تێستكردنى گريمانەكانى توێژينەوەكە داتا كۆكراوەكان شيكرانەوە بەڕێگاى ئامارى بەبەكارهێنانى بەرنامەى SPSS , و توێژينەوەكە چەندين دەرەنجامى هەبوو بەشێوەيەكى فەرمى بەوەى كە ئاڕاستەكانى خانوو كاريگەريەكى بچوكيان هەيە لەسەر بەهاى بازارى خانووەكانى سنوورى شارەوانى كۆيە, هەروەها توێژينەوەكە پێشنيازى ئەوەى كردووە كە نابێ ئەو ئاڕاسانەى خانوو پشتگوێ بخرێ كە پەسەندە لەلاى دانيشتوان وە پێويستە جەختبكرێتەوە لەسەر ئەو هۆكارانەى كە كاريگەريان هەيە لەسەر خستنەڕو و خواستى خانووبەرە لە سنوورى شارەوانى كۆيە.

تأثير اتجاه المبنى على القيمة السوقية: بلدية كوية حالة دراسة

الملخص:

تهدف هذه الدراسة الى التعرف على تأثير اتجاه المبنى على قيمة السوقية, وهي دراسة استطلاعية تشملت كل من ؛ السكان, المشترين و أصحاب المكاتب العقارية في بلدية كوية ، ويتمثل المتغير المستقل في هذه الدراسة بالأتجاهات الثمانية وهي: الشمال ، الشمال الشرقي ، الشرق ، الجنوب الشرقي ، الجنوب ، الجنوب الغربي ، الغرب والشمال الغربي ، أما المتغير التابع فيتمثل بالقيمة السوقية للمبنى. و لأختبار فرضيات البحث فقد تم تصميم استبانة تضمنت تسعة عناصر, و تم توزيعها على عينة البحث التي تكونت من 126 مفردة تمثل السكان الذين تم اختيارهم بشكل عشوائي. و تم تحليل البيانات من خلال معادلات الانحدار باستخدام برنامج SPSS، و من ابرز ما توصلت اليه الدراسة أن اتجاه المبنى له تأثير ضئيل على قيمته السوقية, و عليه أوصلت الدراسة بعدم تجاهل الاتجاه الذي يفضله سكان والذي ينبغي أن يركز على العوامل التي تؤثر على العرض والطلب على المنازل في بلدية كوية.